Holland+Knight

Tel 202 955 3000
Fax 202 955 5564

Holland & Knight LLP
2099 Pennsylvania Avenue, N.W.
Suite 100
Washington, D.C. 20006-6801
www.hklaw.com

George Y. Wheeler
202 457-7073
george.wheeler@hklaw.com

July 10, 2007

VIA ECFS

Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 Twelfth Street, SW, TW-A325
Washington, DC 20554

Re: Ex Parte Presentation
WT Docket Nos. 06-150, 06-169, 96-86, 05-265 and 00-139
PS Docket No. 06-229

Dear Ms. Dortch:

Pursuant to Section 1.1206 of the Commission's ex parte rules, 47 C.F.R. §1.1206, this letter is to notify you that on July 9, 2007 representatives of United States Cellular Corporation ("USCC"), Professor Robert J. Weber, J. L. Kellogg Graduate School of Management, Northwestern University, Joseph R. Hanley, Vice President - Technology Planning and Services, Telephone and Data Systems, Inc., Grant B. Spellmeyer, Director, Regulatory Affairs, USCC, Brett Tarnutzer and the undersigned, met with members of the Wireless Telecommunications Bureau including James D. Schlichting, Deputy Bureau Chief; Margaret W. Wiener, Division Chief, Auctions and Spectrum Access Division; Walter D. Strack, Chief Economist, and Martha Stancill, Economist, to discuss issues arising in the above-referenced proceedings as follows:

- USCC opposed adopting a package auction format, which would allow the largest bidders to distort the appropriate balance of small and large licenses and to limit severely licensing opportunities for medium sized and smaller bidders.

- USCC opposed use of anonymous bidding in combination with any package auction format.

Also attached is a copy of a USCC written presentation outlining how use of package bidding procedures is unnecessary and unfair, will diminish auction revenues and efficiency, takes bidding procedures to an unprecedented level of complexity, risk of unintended consequences for non-package bidders and FCC manipulation during the auction of market valuations for licenses which are part of a package, and is dependent on the speedy resolution of highly problematic software development and other implementation issues in the short time that remains before the 700 MHz auction must commence.

In the event there are questions regarding this matter, please contact the undersigned.

Sincerely,

George Y. Wheeler

cc via e-mail:

jim.schlichting@fcc.gov
margaret.wiener@fcc.gov
walt.strack@fcc.gov
martha.stancill@fcc.gov

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U.S. Cellular

Ex Parte Discussion
700 MHz Band (WT Dkt No 06-150)

July 9, 2007

Package Bidding

- Is it necessary?
- Is it fair?
- Is it revenue- or efficiency-enhancing?
- Is it sensible?
- Is it implementable?

In the following pages, we answer "NO!" to the first four questions, and "probably NO!" to the fifth.

Is It Necessary? NO!

- SMR (simultaneous multi-round) auctions have worked well for more than a dozen years, facilitating the development of several nationwide carriers and a large number of successful regional and local carriers.

- Most recently, SpectrumCo was successful in assembling a near-nationwide package of smaller licenses in Auction 66.

- A bidder seeking nationwide coverage (or nothing) in the 700 MHz auction has available the relatively-inexpensive option of bid withdrawal if its acquisition strategy fails.

  Wireless DBS, LLC (the EchoStar/DirecTV joint venture) was able to withdraw from Auction 66 at no cost.

Is It Fair? NO!

By imposing a "threshold" burden on regional and smaller bidders, it tilts the playing field in favor of large bidders.

The Threshold Problem

Licenses	A	B	C	D	E	F
						
Valuations						
Bidder 1:	$40	$40	$40	$40	$40	$40
Bidder 2:	$52	--	--	--	--	--
Bidder 3:	--	$52	--	--	--	--
Bidder 4:	--	--	$52	--	--	--
Bidder 5:	--	--	--	$52	--	--
Bidder 6:	--	--	--	--	$52	--
Bidder 7:	--	--	--	--	--	$52

SMR AUCTION

Bids:

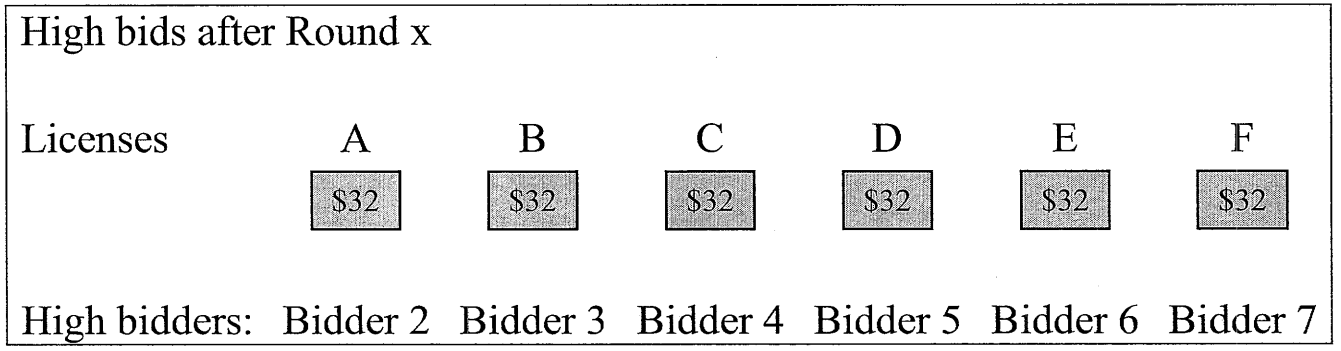
Bidder 1	Bids up to $40 on each license individually.
Bidders 2-7	Each bids just over $40 on a license (in order to beat Bidder 1) and wins.

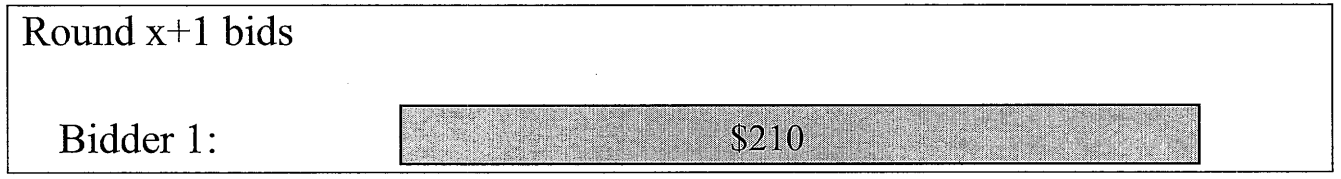
Result:

Bidders 2-7 each win a license.
Each licenses sells for just over $40.

Auction revenue  Just over $240.

PACKAGE AUCTION





Assume that bidders 2-7 must jointly come up with a bid total of $228 to beat the package bid (plus the minimum bid increments). They must somehow decide how to "share" the threshold burden of $228-$192 = $36. This can be done in many different ways.

Licenses	A	B	C	D	E	F
Scenario 1	$32	$32	$50	$32	$32	$50
Scenario 2	$35	$44	$35	$35	$44	$35
Scenario 3	$38	$38	$38	$38	$38	$38

Each bidder has an incentive to bid elsewhere, waiting for the others to pick up a larger portion of the threshold burden. (With the bidders not knowing one another's valuations, and with "real" licenses differing in demographic coverage, there's no single "obvious" resolution.)

It is a well-known economic fact that a problem such as this has no equilibrium at which the package bid is assuredly beaten!

There is a positive probability that the licenses go to the package bidder. An inefficient allocation of licenses, and reduced auction revenues (only $210), are the result.

Is It Revenue- or Efficiency-Enhancing? NO!

As the previous example shows, the use of package bidding raises the specter of an inefficient allocation of licenses and reduced auction revenues.

But what of the Goeree-Holt-Ledyard study, "An Experimental Comparison of Flexible and Tiered Package Bidding" (financed by the FCC)? Did it show a revenue advantage from package bidding?

Not really. They used a highly-stylized experimental setup, which made the possibility of unsold "licenses" quite high … and then used an auction-comparison method which heavily penalized auction methodologies which left licenses unsold.

In highly-competitive auctions in the past, licenses of substantial economic value have always sold … and the same can be reasonably expected in the 700 MHz auction.

The experimenters ran only 7 experimental cases in which the SMR procedure sold all of the 18 offered licenses. Across those 7 auctions, SMR generated the highest average auction revenue!

	Auction Revenues							average auction revenue across cases
	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	
SMR	**438**	**420**	369	**478**	356	316	**346**	**389**
Flexible PB	398	302	366	393	367	**403**	330	366
Tiered PB 1	379	415	367	437	**373**	**403**	330	386
Tiered PB 2	399	406	**388**	467	347	386	330	389

Is It Sensible? NO!

Beyond the challenge of determining how the threshold burden might be shared, regional and smaller bidders face a ***coordination problem***: To top a package bid, they must all submit bids for the pieces of the package concurrently.

If only a bidder's most-recent bids are "active," the coordination problem presents a near-insurmountable challenge.

Therefore, various WTB proposals have included the reactivation of bids from earlier rounds. These proposals take two forms.

1. Reactivation of all bids from a single previous round (as in Auction 51)

This raises the possibility that a bidder could have currently-high bids involuntarily withdrawn, and replaced by earlier bids (some now high, and others not). The withdrawal could ripple through the entire auction (as others' earlier bids are reactivated to replace the withdrawn bids), leaving bidders with scatterings of high bids that completely fail to fit their business plans.

2. Reactivation of all bids from all previous rounds

This raises the possibility that a bidder could find itself the high bidder on complementary licenses (of which it only wants one or the other), or on a set of licenses that, in aggregate, exceed its budget constraints (i.e., in an attempt to solve a debatable exposure problem for a large bidder, the procedure creates serious exposure problems for smaller bidders).

The WTB's package bidding proposals have involved breaking down a package bid into "imputed" prices for the individual licenses in the package (in order to establish minimum acceptable bid levels).

In a previous filing (Comments on DA 05-1267)), we've illustrated that this imputed pricing scheme can severely distort bidder incentives … even to the point of making it in a bidder's best interest to initially avoid bidding for the licenses it wants, and to bid up the prices of other licenses first. Will the imputed prices for some licenses be allowed to drop as the prices of other licenses rise?

- If so, the threshold problem becomes even more severe.

- If not, it becomes strategically desirable for a package-bidder to drive up the package price rapidly, raising the imputed prices of the less-valuable parts of the package to an uneconomic level in order to keep smaller bidders from overtaking the package bid. At the same time, the strategic distortions mentioned above are exacerbated.

Is It Implementable? Who Knows?

Until prospective bidders are given a thorough opportunity to experiment on their own with any proposed software package, the answer must be assumed to be "**NO!**".

Auctions 51 and 65 were of a very small scale in terms of numbers of bidders and licenses, as well as economic value. The FCC has NO experience with large-scale package-bidding auctions … and neither do the prospective 700 MHz bidders.

To expect bidders to adequately comprehend and comment upon procedures explained in terms such as the following (from the Auction 51 rules) is totally unreasonable.

We have therefore chosen a method that attempts to balance minimizing the slack variables and reducing the fluctuations in pseudo-dual prices from round to round. This method requires solving two optimization problems, the first of which is alternative 3 above, which we present as (P4):

$$\Omega^* = \min \sum_{j \in B^t \setminus (W^t \cup F)} \delta_j$$

$$s.t. \sum_{i \in L} a_{ji}\pi_i + \delta_j \geq b_j, \text{ for all } j \in B^t \setminus (W^t \cup F)$$

(P4):

$$\sum_{i \in L} a_{ji}\pi_i = b_j, \qquad \text{for all } j \in W^t$$

$$\pi_i \geq b_j, \qquad \text{for all } j \in F \setminus (W^t \cap F)$$

and i is the license index associated with bid j

$$\delta_j \geq 0, \qquad \text{for all } j \in B^t \setminus (W^t \cup F)$$

Since multiple optimal solutions can exist to (P4) we solve a second optimization problem that chooses a solution in a way that reduces the magnitude of price fluctuations between rounds.

Transparency is essential for such an important auction. Indeed, other commenters (such as Paul Milgrom and Karen Wrege) have argued that an extensive public forum should be held before any formal package-bidding procedures are proposed.

If package bidding *is* to be proposed for comment, the proposal should certainly be accompanied by a full public release of bidding software implementing the proposal.

Only in this way can bidders fully evaluate the proposal, and only in this way can they be assured that the software implements the rules as described, and is (reasonably) bug-free.

Summary: Package Bidding

- Is it necessary? No!
- Is it fair? No!
- Is it revenue- or efficiency-enhancing? No!
- Is it sensible? No!
- Is it implementable? Who knows?

Why experiment with an untested, biased, overly-complex and hard-to-understand new auction procedure in one of the most important auctions the FCC has ever held…especially when the SMR procedure has been repeatedly used with great success over the past dozen years?